The Cure for Heart Disease: Condensed

By Owen R. Fonorow, Copyright 2004

'READER'S DIGEST' VERSION

Cardiovascular Diseases Those few species that fail to synthesize ascorbic acid (vitamin C) are prone to a form of ‘heart disease’ that is not prevalent in other species. The theory that Cardiovascular Disease (CVD) is related to a deficiency of vitamin C was first proposed by the Canadian physician G. C. Willis in 1953. He found that atherosclerotic plaques form over vitamin-C-starved vascular tissues in both guinea pigs and human beings. In 1989, after the discoveries of the Lp(a) cholesterol molecule (*circa* 1964) and its lysine binding sites (*circa* 1987), Linus Pauling and his associate Matthias Rath formulated a unified theory of heart disease and invented a cure. Vitamin C and lysine (and proline) in large amounts become ***Lp(a) binding inhibitors*** that restore vascular health and are patented to destroy atherosclerotic plaques.

Chronic scurvy. Heart disease is a misnomer; the underlying disease process reduces the supply of blood to the heart and other organs leading to angina ("heart cramp"), heart attack and stroke. The disease is characterized by scab-like build-ups that grow on the walls of blood vessels. The correct terminology for this disease process is ***chronic scurvy***, a slower form of the classic vitamin C deficiency disease.

The hypothesis that CVD is an ascorbic acid (vitamin C) deficiency disease was first conceived and tested in Canada. Willis devised a method of photographing plaques with X-rays and observed that atherosclerotic

plaques were not uniformly distributed throughout the vascular system; rather these "blockages" are concentrated near the heart, where arteries are constantly bent or squeezed.

Another Canadian, Paterson, had found that the tissues of heart patients were generally depleted of vitamin C, and it was well known that vitamin C is required for strong and healthy arteries. Willis reasoned that only the mechanical stress caused by the pulse could explain the typical pattern of atherosclerosis. To Willis, the body was laying down plaque precisely where it was needed in order to stabilize the vascular system.

By the late 1980s, medical researchers had made several intriguing discoveries.

First came the discovery that heart disease begins with a lesion, a crack or stress fracture, in the arterial wall. The question became, and remains, as to the cause of these lesions in human beings since they do not arise in most other animals. Then a variant of the so-called "bad" LDL cholesterol called lipoprotein(a), or Lp(a) for short, was studied and found to be *really* bad. Lp(a) is sticky because of receptors on the surface of the molecule called ***lysine binding sites***. Work that led to the 1987 Nobel prize in medicine discovered that lysine (and proline) binding sites cause the formation of atherosclerotic plaques. Then, Beisiegel *et. al.* in Germany examined plaques post mortem and found only Lp(a), not ordinary LDL cholesterol.

Lp(a) was the genetic difference between beings that suffer cardiovascular disease and those that do not. Lp(a) had evolved only in species that do not make their own vitamin C - e.g. humans and guinea pigs.

Pauling and Rath repeated the earlier Willis experiments, but this time they monitored Lp(a). They discovered that it becomes elevated in guinea pigs

deprived of vitamin C, but not in the controls. These experiments connected elevated-Lp(a) with low serum vitamin C. They realized that in most species, sufficient ascorbic acid will prevent stress fractures, but in those species that suffer chronic scurvy, Lp(a) had evolved to patch cracked blood vessels.

As chronic scurvy progresses, the liver produces more Lp(a) molecules. As the number of Lp(a) molecules increases, they tend to deposit on top of existing plaque formations. When the healing process overshoots, the arteries narrow and the flow of blood is reduced.

This problem has a solution. The Lp(a) molecule has a finite number of lysine binding sites - points of attachment to lysine. Pauling's invention - the cure for heart disease - is to increase the serum concentration of the amino acid lysine enough to make the Lp(a) unattractive. As more lysine enters the blood stream, the probability increases that floating Lp(a) molecules will bind with it (*rather than with the patches of plaques growing on the arterial walls*.)

After all the Lp(a) molecule's binding receptors are filled with the free lysine floating in the blood, the Lp(a) molecule becomes as harmless as ordinary LDL cholesterol.

Pauling and Rath called the substances that treat chronic scurvy and destroy existing plaques ***Lp(a) binding inhibitors***. Vitamin C, to increase collagen production and to improve the health and strength of arteries, and lysine, to prevent and to dissolve Lp(a) plaques, are the primary binding inhibitors. These substances taken together are clinically effective.

Linus Pauling believed that chronic scurvy can be prevented with an orthomolecular daily intake of between 3,000 to 10,000 mg or more vitamin C. This amount approximates what the animals synthesize, and

matching animal production is the reason Pauling ingested 18,000 mg daily.

Pauling and Rath's invention for destroying existing atherosclerotic plaques is the large amount of another essential nutrient, the amino acid lysine. Pauling filmed a video lecture in which he recommended that heart patients take between 2,000 and 6,000 mg of lysine daily with their vitamin C (more if serum Lp(a) is elevated). Neither vitamin C nor lysine have any known lethal dose.

The Lp(a) binding inhibitors become the ***Pauling Therapy*** for heart disease only at high dosages, between vitamin 3 to 18 g ascorbic acid and 3 to 6 g lysine. In his video, Pauling recounts the first cases where his high vitamin C and lysine therapy quickly resolved advanced cardiovascular disease in humans. The effect is so pronounced, and the inhibitors are so nontoxic, that Pauling doubted a clinical study was even necessary.

Recently, the amino acid proline was found to be an even more effective Lp(a) binding inhibitor than lysine *in vitro*. Adding between .5 and 2 g proline may be of significant additional benefit.

When serum Lp(a) is elevated, Lp(a) binding inhibitors can profoundly interfere with the disease process. Binding inhibitor formulas that include proline have been documented to lower Lp(a) in six to 14 months. In cases where Lp(a) is not reduced, binding inhibitors become even more important to neutralize Lp(a) regardless of their effect on serum Lp(a).

Recently a reevaluation of the Framingham Heart study that Lp(a) and not ordinary LDL is highly predictive of CVD and Oxford found that elevated Lp(a) increases the risk of heart attack and stroke by 70%.

The on-going lack of scientific curiosity or interest by organized medicine in the Pauling/Rath theory and Pauling's high-dose therapy may well be recognized as the greatest lapse of the 20th century.

Heart disease orthomolecular protocol

NOV 2005: UPDATED PROTOCOL HERE

1. **Take Vitamin C** as ascorbic acid (*or sodium ascorbate, but this form may be less effective*) up to bowel tolerance (**3 to 18 g per day** in divided doses.)

   The half-life of vitamin C in the blood stream is 30 minutes. NIH findings indicate minimum 500 mg every 4 hours leads to highest sustained blood levels, take more before bed, trips, etc. Trouble with bloating/gas/diarrhea after your vitamin C? Try Liposomal Vitamin C
2. **Take Lysine. 2 to 3 g daily** for prevention and from **3 to 6 g daily** for the greatest therapeutic benefit**.**
3. **Supplement Coenzyme Q10 (**100 - 300 mg) (Note: Vitamin C and several vitamins will help stimulate your own synthesis of CoQ10. CoQ10 is a vital substance for energy and proper heart function. Popular drugs interfere with your body's own production of CoQ10, and they may lead to heart failure)
4. **Take Proline** from 250 mg to 2000 mg daily. (This added factor may lower elevated Lp(a) within 6 to 14 months.)
5. NEW: Eliminate man-made/processed fats, such as trans and hydrogenated fats, and supplement Omega-3 rich oils. "Research has

shown that an Omega-3 Index of 8 percent to 10 percent reduces a person's relative risk of death from coronary heart disease by 40 percent, and from sudden cardiac death by 90 percent." This benefit probably results from restored insulin-mediated glucose/vitamin C uptake into cells. [See: Protocol for Reversing Diabetes Type II by Eliminating Hydrogenated and Trans Fats and adding Omega-3 oils...]

Note: Following an Atkins-style diet will eliminate most trans fats because these "poisons" appear mostly in processed carbohydrate foods such as cookies, crackers, snacks, etc. Butter is vastly supperior to margarine. Natural saturated fats are vastly superior to any fats or oils processed for longer shelf life.

6. NEW: Eliminate ordinary sugar and refined carbohydrates. New research confirms Dr. John Ely's 30-year theory that sugar (glucose) competes with ascorbic acid (Vitamin C) for insulin-mediated uptake into cells. Taking sugar can effectively crowd out the Ascorbate. The effect of the Pauling Therapy is reportedly much more pronounced and immediate when sugar is eliminated (and good Omega-3 fatty acids are added.)
7. **Follow Paulings general heart and cardiovascular recommendations** provided in his book *HOW TO LIVE LONGER AND FEEL BETTER* , e.g., Vitamin E - 800 to 3200 iu ,Vitamin A - 20,000 to 40,000 iu , andSuper B-Complex, esp. Vitamins B6 and B3
8. **Supplement the mineral Magnesium** (300 to 1500 mg) and avoid Manganese (No more than 2 mg. USDA researchers report that elevated manganese, more than 20 mg daily, competes with magnesium uptake in the heart causing irregular heart beats.)

Manganese alters mitochodrial integrity in the hearts of

swine marginally deficient in magnesium ... *These results suggest that high Mn, when fed in combination with low Mg, disrupts mitochondrial ultrastructure and is associated with the sudden deaths previously reported.*

9. **Eat salt, only unrefined salt,** Brownstein discovered literature that a low-salt diet can cause the body to change its hormonal balance as it attempts to retain sodium. This leads to a 400% chance of heart attack in those with high blood pressure and low sodium intake [*]. Refined (ordinary table salt) is poisonous, but unrefined salt has over 80 minerals and can be considered a necessary "health food."
10. A**void supplemental calcium**, and supplement vitamin K for proper calcium metabolism, especially if you have taken antibiotics or blood thinners in the past.
11. **Add a good mineral/multivitamin**
12. Supplement the amino acids **Taurine, Arginine and Carnitine (1 to 3 g).**

Owen Fonorow, Naturopath
Vitamin C Foundation
PO Box 3097, Lisle IL 60532
www.VitaminCFoundation.org
630-416-1438

VitaminCfoundation.org
TheCureForHeartDisease.com
PaulingTherapy.com
Hearttechnology.com

How Much Vitamin C Should I Take? Dr. Pauling Has The Answer

HORMONE CARDIONOMIC

By: Michael Lam, MD, MPH

Have you ever asked yourself or wondered "How much vitamin c should I take?". When suffering from variable illnesses or in an effort to prevent illness knowing how much vitamin c should I take is always a common question. After pouring over hundreds of scientific articles

on Vitamin C for many years, there is little doubt in my mind that Vitamin C works well in

reducing oxidative stress. From cancer to cardiovascular disease, Vitamin C has many curative effects. Though many individuals do, like you, wonder, "How much Vitamin C should I take?"

Dr. Linus Pauling is a two time Nobel Laureate. He was able to answer questions like "how much vitamin c should I take", and he spent 25 years researching Vitamin C. This is his last interview before death at the age of 93. Dr. Pauling attributed the last 18 years of his life to Vitamin C supplementation. He is called the Father of Vitamin C.

This is a must-read for anyone interested in **anti-aging health and longevity, and thosewho are constantly wondering "How much vitamin c should I take?"**

Q:**Now you are recommending Vitamin C and lysine for the treatment of cardiovascular disease.**

How exactly does lysine help to prevent cardiovascular disease?

Many investigators contributed to showing that lipoprotein A is what is deposited in plaques, not just LDL, but lipoprotein A. If you have more than 20 mg/dl in your blood it begins depositing plaques and atherosclerosis so the question then is what causes lipoprotein A to stick to the wall of

the artery and cause these plaques?

Well countless biochemists and other chemists are pretty smart people and they discovered what it is in the wall of the artery that causes lipoprotein A to get stuck to the wall of the artery and form atherosclerotic plaques and ultimately lead to heart disease, strokes and peripheral arterial disease.

The answer is there is a particular amino acid in a protein in the wall of the artery - lysine, which is one of the twenty amino acids that binds the lipoprotein A and causes atherosclerotic plaques to develop. I think it is a very important discovery.

Well, now, if you know that there are residues of lysine, lysyl residues, that hold the lipoprotein A to the wall of the artery and cause hardening of the arteries, then any chemist, any physical chemist would say at once that the thing to do is to prevent that by puffing the amino acid lysine in the blood to greater extent than is normally.

Of course you get lysine normally **in your food**. Meat in particular contains a good bit of lysine.

And you need lysine to be alive, it is an essential amino acid, you have to get about a gram a day to keep in protein balance, but you can take lysine, pure lysine, a perfectly non toxic substance in food, as 500 mg tablets and that puts extra lysine molecules in the blood. They enter into competition with the lysyl residues on

the wall of artery and accordingly count to prevent the lipoprotein A from being deposited

or even will work to pull it loose and destroy the atherosclerotic plaques.

Q:**Do you think the treatment of lysine and Vitamin C can reverse the atherosclerotic process?**

I think so. Yes. Now I've got to the point where I think we can get almost complete control of cardiovascular disease, heart attacks and strokes by the proper use of Vitamin C and lysine. It can prevent cardiovascular disease and even cure it.

If you are at risk of heart disease, or if there is a history of heart disease in your family, if your father or other members of the family died of a heart attack or stroke or whatever, or if you have a mild heart attack yourself then you had better be taking Vitamin C and lysine.

Q:**When you published 'Vitamin C and the Common Cold' answering peoeple questions surrounding "How much vitamin c should I take?", what did you expect that to do to medical thinking?**

When my book was published near the end of 1970, I thought the medical profession and ordinary people would be pleased. They would be pleased that they no longer were suffering the miseries of the common cold and related diseases and the physicians would be pleased in that they were no longer bothered by patients with the common cold for which they

patients with the common cold for which they didn't have any very good treatment anyway, but could concentrate on more serious illnesses. in addition they coul answer question like "How much vitamin c should I take?"

So I was astonished at the reception that I got when the Professor of Medicine at Mount Sinai College of Medicine wrote to me complaining about my statement that Vitamin C, three grams a day would provide considerable protection against the common cold.

I checked the medical literature to find what evidence there was at that time. I found four controlled trials, recently well conducted trials, involving what I would describe now as rather small amounts of Vitamin C per day of between 200 mg and a 1,000 mg per day. I think that the best one of these four early trials was done by Dr Ritzel, the physician for the school system in Basle, Switzerland.

He gave 270 schoolboys at a winter ski camp either a gram of Vitamin C per day, in a capsule or a placebo. It was a randomized double-blind, controlled trial and with each boy the nurse made sure that the boys swallowed the capsule so that he didn't have the trouble that other investigators have of the boys, boys especially, not swallowing the capsule.

Instead, trading them back and forth so that you, the investigators, didn't know which one had received the Vitamin C and which the placebo.

The result was 63 per cent less illness with the

The result was 63 per cent less illness with the common cold for the boys who received the

Vitamin C compared to those who received the placebo.

Well, this was a very good trial.

In a paper by a professor of medicine at the University of Helsinki, Finland about Vitamin C and the common cold, he mentioned the publication of my book and said that he had decided to check the medical literature to find out how many studies had been carried out since 1970 on the effectiveness of vitamin C against the common cold.

He decided that he would accept only studies in which at least 1 gram a day of Vitamin C was given, some of the studies involved 2 grams, perhaps one involved 3 grams a day but mostly they were 1 gram a day of Vitamin C in which a placebo was given to half of the subjects and the studies that were randomized and double-blind so that neither the physicians nor the subjects knew which persons were getting the Vitamin C.

He found 38 clinical trials had been carried out since 1970 satisfying these requirements. 37 of the 38 trials lead to the conclusion that Vitamin C had a protective effect greater than the placebo and a number of these, a dozen of these clinical trials had high statistical significance at 99.9 per cent confidence level and that the result wasn't just a statistical fluctuation, a chance result.

There is no doubt now that **Vitamin C in large doses** has value against the common cold.

If you wanting to know "How much vitamin c should I take?" My recommendation is not 1 gram a day, or 2 grams a day of Vitamin C but at the first sign of a cold, take a gram of vitamin C or 2 grams and then an hour later, if the symptoms still exist - if you're still sneezing, or your nose is running or feel shivery, take another 1 or 2 grams of Vitamin C. Keep doing that until you forget because the symptoms have gone away and this will stop a cold in almost every person who follows the regimen.

Q:**When trying to determine how much vitamin c should I take, I often hear the major criticism that anything over 100 mg of Vitamin C is a waste of money and goes down the drain because it's eliminated by the body. What do you think about this?**

The evidence shows that this is just not true. I myself, twenty years ago or more, read this statement, probably made by Fred Stare, professor then at Harvard School of Public Health, and I decided to check. I was taking 10 grams per day of Vitamin C. I collected my urine for 24 hours and analyzed it myself for the Vitamin C content.

Instead of nearly 10,000 mg being eliminated in the urine, 9850 mg, I found only 1,500 mg, 15 per cent of the dose that I was taking during this trial, so the statement just is not true. Of course, some of the ingested ascorbate remains in the intestinal contents and doesn't get into

the blood stream. It may be as much as a third.

Some evidence indicates that perhaps as much as a third remains in the intestinal contents. Well, this does good, protecting the lower bowel against cancer by destroying carcinogens that are present in the fecal material and also does good because of the laxative effect of bringing water into the bowel so that the volume of the waste material is larger.

There's also a smaller surface area which helps speed up the process of elimination of this material. The rest of it, two thirds perhaps 6.5 grams when I was taking 10 grams a day, gets into the blood stream but only 1.5 grams is eliminated in the urine.

So we can ask what happens to the other 5 grams? The answer I'm sure, in fact we have direct experimental evidence for it, is that Vitamin C is rapidly converted into other substances, oxidation products and these other substances, these oxidation products have been shown to have greater value against cancer than Vitamin C itself.

So if you take large doses of Vitamin C you produce large amounts of these other substances, the value of which is still under investigation. We have been studying it for fifteen years.

Q:**Why has your work on nutrients been countered? Is it ignorance, is it prestige, is it money interests? Why is it being**

suppressed?

Well I have thought about that a great deal. Most scientists in general have accepted my idea and ideas of other pioneers. Of course I took over my ideas mainly from Irwin Stone and other early investigators of Vitamin C. So scientists have said usually "Well Linus Pauling has been right so often in the past, he's probably right about this too".

But then an ordinary physician, has the duty of dividing his time and energy for the proper care of his patients. He doesn't have time to read the literature, the scientific and medical literature, and think about a question such as whether there is something new and significant that has been discovered. He has to rely on medical and nutritional authorities and I blame them for having been lazy and biased, and not really willing to keep up with new developments.

But why are they biased?

Well I decided, 40 or 50 years ago, that when they were trying to understand the action of drugs and also of nutrients, they realized that you give a drug in the amount as large as possible so that its toxicity does not kill a patient in the hope that it will save the patient's life. And there are certain drugs that have great value in protecting against certain diseases.

There is no doubt that these drugs have great value. Doctors and investigators have worked hard to determine what the proper dose of a

drug is. Now with vitamin C for example, I am sure they said we know what Vitamin C does. It

keeps people from dying from scurvy and investigators have studied human beings enough to know how much Vitamin C they need to give in order to prevent the development of scurvy.

It isn't much, just a little pinch each day so they say we know the answer with vitamins just as with drugs. And the answers are the RDAs, 60 mg a day of vitamin C to prevent scurvy, and 2 mg of a day of thiamin, vitamin B1, to prevent beriberi and so on. What they did not do was to ask this question: here is a substance which has no known toxicity, which can be taken in 1000 times the RDA, the amount that stops people developing scurvy, without causing harm to a person.

When trying to determine how much vitamin c should I take, is there a possibility that very large doses of Vitamin C and the B vitamins and Vitamin A, beta carotene and Vitamin E, would have much additional value in improving the health of the people?

Twenty five years ago, when I became interested in vitamins, it was just that question that interested me. I looked in the medical and nutritional literature to find out how much Vitamin C a person should take in order to be in the best health, perhaps to control diseases other than scurvy.

I couldn't find anything and the result, of

course, is for 25 years I have devoted much of my life and time and energy trying to find the

answer to the. question - how much of these very powerful and important substances should we take to be in the best of health?

Q:**How would you compare your vision of orthomolecular medicine and conventional medicine?**

One of my colleagues in the field of orthomolecular medicine invented the word 'toximolecular' medicine to describe conventional medicine and this seems to me to be good in that conventional medical practice relies heavily on drugs, all of which essentially are toxic substances.

It's hard for me to think of an example of a drug that is like the vitamins in having nearly zero toxicity. With aspirin, some patients with severe arthritis are advised by the physician to take as much as 10 grams of aspirin a day and it's my memory that the LD50, the amount that would kill 50 per cent of patients, is 28 grams of aspirin and that's why many people commit suicide by taking an overdose, a whole bottle full aspirin tablets. So I think that's a good description of conventional medicine.

I'm not against drugs when they are properly used and have said so over and over again.

We advocate for every patient with cancer taking high doses of Vitamin C as an adjunct to appropriate conventional therapy and I agree with Dr Cameron that surgery - he was a

with Dr Cameron that surgery - he was a surgeon - surgery is often the best treatment for a malignant condition if the malignant tumor can be removed and sometimes, for a few kinds of cancer, chemotherapy is known to have much value and, for some kinds, high energy radiation has value even though chemotherapy and high energy radiation have pretty serious side effects, are damaging to the body as a whole, nevertheless, the benefit may outweigh the disadvantages.

Q:**How much Vitamin C should I take? And, If you take 3 grams should It be split throughout the day?**

"How much vitamin c should I take?" is a great question and a common one. In my opinion adults should be taking at least 2 grams a day. There is much evidence about increased health with 2 grams a day, and of course even more with 4 or 6 grams a day. Even an extra 60mg had been shown to add value in cutting down the death rate from heart disease, cancer and other diseases. Now my feeling is as people grow older they ought to be increasing their Vitamin C and perhaps they should follow the policy that I have followed of increasing the intake.

It can be either one chunk, one dose in the morning, or even better three doses throughout the day, increasing the intake until a laxative effect is observed, speeding up the rate of elimination of waste material from the bowel. So my suggestion is every person who wants to have the best of health should increase the

intake of Vitamin C to somewhat less than the

amount that causes significant looseness of the bowel.

Q:**How do you think your opponents will remember you?**

Dr. Pauling's Final Comments on the question "How Much Vitamin C Should I Take?"

Molecular biologists will of course remember me as one of the founders of molecular biology, and chemists in general will remember me as one of the founders of modern chemistry, changing it from a pretty descriptive to a far more rational sort of science, and physicians will remember me as having been at least in part, responsible for the revolution in medicine in which there is a great improvement in human health and in control of disease through the use of Vitamin C and other vitamins. This will include my opponents, although the opponents may have died off by that time.

Excerpts from interviews with Tony Edwards for QED BBC Television, and with Patrick Holford at the Power of Prevention conference.
www.internetwks.com

Dr. Lam's Key Questions

+ **Are there any natural supplements that can help with sperm production?**

+ **Since Vitamin C comes from tapioca, does boba or tapioca dessert contain Vitamin C?**

+ **When trying to decide how much vitamin c should I take, why shouldn't I take vitamin C later in the afternoon or in the evening?**

Are You Ready to Start Your **Adrenal Fatigue Recovery Journey?**

FREE HEALTH CONSULTATION

Dr. Lam Coaching

Worldwide Nutritional Coaching Since 2001.

2492 Walnut Ave Suite 101
Tustin, CA 92780, USA

+1 (626) 571-1234
+1 (888) 375-2688 (Toll Free)

Adrenal Fatigue Recovery

Concepts

Symptoms

Lifestyle

Recovery

Complications

Testing for AFS

NEM Nutritional Program

Hormone

Bioenergetics

Detoxification

Inflammation

Neuroaffect

Cardionomic

Information Quick Links

About

Contact

Coaching Services

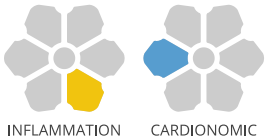
Diet

Blog

Video Channel

** Cost of program varies and will be discussed at time of consultation at absolutely no obligation for those who qualify. Nutritional coaching has its limitations and is not for everyone and there is no guarantee of acceptance into the program.

Megadose Vitamin C Therapy In Cardiovascular Disease



By: Michael Lam, MD, MPH

The past 30 years saw more and more people opting for the use of megadose Vitamin C therapy together with lysine, proline, and carnitine to prevent and treat heart diseases. Although this therapy is still not within mainstream medicine, many well-

conducted studies have proven the effectiveness of these natural compounds.

We will be dwelling on this subject of megadose Vitamin C in greater detail below. Meanwhile, let us first have a basic understanding of the functions of the endothelial and how atherosclerosis, the foundation of cardiovascular disease comes about.

Endothelium

We all know that atherosclerosis is the main cause for heart attack and strokes. **Atherosclerosis is the result of injury to the extremely thin layer of endothelial cells that line the inside surface (the lumina) of the heart and blood vessel walls.** Circulatory toxins such as smoke, free radicals, sugar and infection cause these injuries. Numerous established studies have confirmed that an impaired endothelial function is linked to all **major coronary heart diseases**.

Although the endothelium is extremely thin, it is a highly complex structure in terms of function. It regulates the structural integrity of the vascular wall by secreting numerous factors that determine not only the contractility of the walls but also the homeostasis of the blood. **Imbalance of this contractility function will lead to hypertension.** If the local vascular homeostasis is disturbed, it will result in platelet deposition, aggregation and a release of factors that promote smooth muscle proliferation. When this happens, you may get **fibrosis**

When this happens, you may get **fibrosis, atherosclerosis and thrombus formation.** As imbalances are first initiated at the endothelial, where insults excite an inflammatory response, the **endothelium is therefore the first link between inflammation and coagulation.** The endothelium also represents a surface where proteins are involved in coagulating. It is also here that the development of inflammation are expressed

We will now look at the cascade of events a little closer. A high sugar diet and an environment full of cigarette smoke produce toxins such as free radicals that are ever ready to attack the endothelium. The endothelium, in an attempt to heal itself will launch an inflammatory response to get rid of the unwanted guests.

The characteristics of an inflammatory response are as follows:

1. Vasodilatation to increase blood flow to the area.
2. Increase vascular permeability to allow diffusible components to enter the site.
3. Cellular infiltration by chemotaxis, or the directed movement of inflammatory cells through the walls of blood vessels to the site of injury.
4. Changes in biosysnthetic, metabolic, and catabolic profiles of many organs.
5. Activation of cells of the immune system as well as of complex enzymatic systems of blood plasma.

During an inflammatory response, our blood flow is increased to transport more white blood cells to the injured area. The white blood cells first surround the damaged tissue, then together with the other cells in the damaged tissues neutralize, repair the damage and remove whatever is causing the injury. This reaction can be measured in the blood by the elevation of a substance called C reactive protein.

Meanwhile, a small amount of LDL ("Bad") cholesterol that has built up in the artery wall becomes oxidized. Oxidized LDL is one of the triggers that set off a chain reaction. It causes the endothelium to express a special kind of molecule "glue" called ELAMS (endothelial-leukcyte adhesion molecules). These molecules, which happen to be floating by in the bloodstream causes certain kinds of white blood cells (monocytes and T lymphocytes) to stick to the endothelium. At this point in time, the inflammatory response is still well under control and normal, whether it is in the artery or in the tissue.

Beyond this point, the healing process goes off track. The white blood cells will start to move between and below the endothelium and cause damage in two major ways. Firstly, they will cause some of the muscles cells in the artery walls to grow and secondly, they incorporate particles into the artery wall, consuming the oxidized LDL particles. What results from here is a fatty streak that becomes a fibrous plaque.

a fibrous plaque.

This intricate process begins in the tissue under the endothelium. Due to inflammatory reactions, the endothelium's structure becomes permeable to lipoproteins, particularly low-density lipoproteins (LDL) and macrophages. These particles will enter into the site of injury, accumulate cholesterol as cholesterylester and develop into foam cells. A raised LDL-cholesterol and related cholesterol carrier called lipoprotein (a) concentration is recognized by many as a major risk factor for heart disease as it appears to be the donor of cholesterol deposited in the artherosclerotic plaque. Being adhesive, the cells will attract other substances, resulting in a continuous deposition of unwanted conglomerate which we called fatty streak. **The latter consist of lipids (fats), complex carbohydrates, blood, blood products, fibrous tissue, oxidized ascorbates and calcium deposits.** As the fatty streak becomes bigger and bigger, this resulting fibrosis forms an " endothelial tumor" or a plaque. **The process of plaque formation is called atherosclerosis. Atherosclerosis blocks the blood's pathway and narrows the arteries over time.**

The arteries in our bodies consist of three layers:

1. The intima is composed of the endothelium and underlying sub-intimal connective tissues

tissues.

2. The media is composed of the internal and external elastic lamina surrounding the smooth muscles.
3. The adventitia lies at the outer most area comprising of connective tissues in which nerve fibers are dispersed.

Therefore, the hallmarks of an artherosclerotic vessel are intimal hyalinization, medial hypertrophy, and endothelial hyperplasia. Histologically speaking, lipids accumulate in the endothelium and muscle cells. In severe cases, lipid particles appear extracellulary in the intima.

It is very interestingly to note that atherosclerotic plaque contains both oxidized lipids and relatively large amounts of alpha-tocopherol and ascorbate. During various studies, researchers have discovered that plaque samples which contained more ascorbate and urate than normal arteries have no discernible differences in the Vitamin C redox status between plaque and control materials. The most abundant of all studied lipids in plaque samples was free cholesterol, followed by cholesteryl oleate and cholesteryl linoleate. The study also noted that approximately 30% of the plaque was oxidized.

If we want to prevent or slow down the accumulation of cholesterol due to the modification or oxidation of LDL, we can take Vitamin C. Various types of heart cells, including

Vitamin C. Various types of heart cells, including endothelial cells, can oxidize the low-density lipoprotein (LDL) form of cholesterol and promote heart disease. As such, taking Vitamin C will help to enrich the endothelial cells and make them less likely to oxidize LDL.

Clinical Studies on Megadose Vitamin C Therapy

The therapeutic use of high and megadose Vitamin C to reduce atherosclerosis is validated in many well-conducted clinical trials.

1.Vitamin C Intake Neutralizes A High Fat Meal.

In a study conducted by Dr. Plotnick, University of Maryland School of Medicine, 20 healthy men and women were fed on one of the three breakfasts:

(1) A high-fat meal consisting of an Egg McMuffin, Sausage McMuffin, and two hash brown patties.

(2) The same meal, but after the subjects were given 1,000 mg of Vitamin C and 800 IU of vitamin E.

(3) A low-fat breakfast of cereal, skim milk, and orange juice.

In this study, Dr Plotnick discovered that a

In this study, Dr Plotnick discovered that a single high-fat meal increased blood triglyceride levels by more than 60 percent and decreased endothelial function by two to four hours. The decrease in endothelial function also correlated with an increase in triglyceride levels, but not with fasting triglyceride levels. The researchers were also pleased to note that taking megadose Vitamin C and Vitamin E just before the high-fat meal helped to maintain normal endothelial functions. Surprisingly, the effects of the vitamin were the same as eating the low-fat meal, which produced no increase in triglycerides or decrease in endothelial function.

2. Vitamin C Helps to Normalize Blood Flow

In order to determine the effects of megadose Vitamin C on normalizing blood flow, researchers measured the thickness of the intima in the carotid arteries of 231 people with atherosclerosis and an equal number of healthy people. The intima is the innermost layer of the blood vessel walls and a thickened intima is a sign of cardiovascular disease. High blood levels of carotenoids, particularly lutein and zeaxanthin are related to normal intima thickness. During an animal study conducted using rabbits, it was reported that the rabbit's blood flow decreased and red blood cells clumped together in small blood vessels after being fed a high-cholesterol diet. However, when these rabbits were given supplemental Vitamin C, their blood flow returned to normal.

3. Vitamin C Protects Vascular Wall

Megadose Vitamin C is very effective for patients with congestive heart failure (CHF). It prevents endothelial cell apoptosis.

In a series of experiments, Dr. Stefanie Dimmeler, University of Frankfurt first showed that tumor necrosis factor-alpha (TNF-alpha) increased apoptosis in cultured endothelial cells by 3 times. However, when **Vitamin C was added to the cultures, this apoptosis was remarkably decreased.** Similar results were also seen in cells treated with angiotensin II.

Researchers explained then Vitamin C interfered with apoptosis signaling by inhibiting the ability of TNF-alpha to induce cytochrome C released from the mitochondria. This suppressed the activation of caspase-9.

In an investigation, 34 patients were given megadose Vitamin C or placebo. At first, they were given 2.5 g of Vitamin C or sodium chloride 0.9% intravenously for 10 minutes. This was followed by 2 g of Vitamin C or placebo given orally twice a day for a period of 3 days.

The results reported that after **taking megadose Vitamin C, plasma levels of circulating apoptotic microparticles were reduced to 32% of baseline levels.** Patients treated with placebo were reduced by an

insignificant amount to 87% of baseline levels.

When cultured endothelial cells were exposed to the patient's serum, apoptosis was significantly reduced from the patients treated with megadose Vitamin C compared with the subjects treated with placebo.

The researchers also noted that megadose Vitamin C did not affect serum concentrations of TNF-alpha or other circulating cytokines. As such, the altered serum levels of circulating cytokines do not contribute to the protective effects of Vitamin C on endothelial cell apoptosis in CHF patients.

4. Vitamin C Helps to Neutralize Cigarette Smoke

Cigarette smoking causes endothelial dysfunction.

A study using 20 smokers and non-smokers was conducted to examine the effects of megadose Vitamin C and cigarette smoking on endothelium-dependent vasodilation. The lumen diameter and the velocity flow of the brachial arteries at rest were measured during:

1. The reactive hyperemia following transient arterial occlusion
2. After 0.3 mg of sublingal nitroglycerin with high-resolution ultrasound.
3. After infusion of saline or saline plus Vitamin C (10 mg/min for 20 min)

Vitamin C (10 mg/min for 20 min).

The same study was also performed in 15 smokers before and 10 minutes after cigarette smoking. Their serum levels of Vitamin C and plasma levels of thiobarbituric acid reactive substances (TBARS) as an index of lipid peroxidation were also measured. The results showed that the smokers had lower Vitamin C levels and higher TBARS levels. Their results also showed the impairment of flow-dependent vasodilatation when compared with non-smokers. **When megadose Vitamin C was given, it improved the impairment of flow - dependent vasodilatation and decreased TBARS in smokers.** However, megadose Vitamin C administration did not have any effects in the non-smokers. The researchers also concluded that cigarette smoking acutely worsened the impairment of flow-dependent vasodilatation and increased TBARS. As such, researchers conclude that:

(1) Endothelium-dependent vasodilatation in the brachial arteries was impaired in smokers. When megadose Vitamin C was given, there was a decrease in TBARS.

(2) Cigarette smoking produced acute impairment of endothelium-dependent vasodilatation in smokers in association with an increase in TBARS.

5. Vitamin C Reduces Blood Pressure

The endothelium regulates the vascular tone by releasing relaxing eicosanoids such as prostacyclin (PGI2) or contracting eicosanoids such as TXA2 in a delicate balance to maintain normal blood pressure. **A dysfunctional endothelium caused by free radicals can offset this balance. The net equilibrium is then pushed towards an increase in TXA2/PGI2 favoring vasoconstriction and hypertension.** This vasoconstriction leads to peripheral neuropathy as vascular supply is reduced.

A study was conducted with a sampling group of 50 hypertensive patients. 25 of these patients were given 500 milligrams a day of Vitamin C, the rest were given matching placebo (inert pills). Before the study began, their average blood pressure was taken as 155/88 mmHg. Subsequently, it was again measured two hours after giving the first dose, and after one month of treatment. The study was double blind, so that no one knew what type of pills each patient was getting until after the study. The results showed no effects on the subject's blood pressure two hours after the first dose. However, after one month, **the systolic pressure in the Vitamin C group fell by 12 mm Hg, which is much more than those in the placebo group. The effects on diastolic pressure were less pronounced, and did not reach any statistical significance.**

In this study, the effects on systolic pressure

In this study, the effects on systolic pressure were quite strong. One reason as to why the change in diastolic pressure was less pronounced may have been because it was normal to begin with.

Other studies on the effects of megadose Vitamin C on blood pressure were also conducted but the results were less consistent.

6. Vitamin C Protects Endothelial Oxidation

Vitamin C protects endothelial function by stopping LDL oxidation, platelet aggregation, and leukocyte adhesion to the endothelium.

A study was conducted on a group of healthy men to see if low plasma antioxidant levels increased ox-LDL (oxidized low density lipid) levels. Ox-LDL is associated with oxidative damages to cells. The result showed that low plasma tocopherol levels were significantly associated with increased ox-LDL levels. Additionally, smoking raises ox-LDL levels further. The study concluded that **alpha-tocopherol protected against oxidative cell damages. Supplementing with Vitamin C would help to decrease this damage, especially in smokers.**

Vitamin E when combined with megadose Vitamin C was proven in many studies to reduce apoptosis (cell death) and oxidative damages to healthy heart muscles and endothelial cells. During a study conducted on AMI (acute

myocardial infarction) patients, it was reported that when these patients were given

supplements of Vitamin E and C, the production of free radicals in leukocytes was decreased.

7. Vitamin C Helps Heart Failure

Megadose Vitamin C can help heart patients by improving the functions of their blood vessels.

When our heart is unable to pump efficiently enough to meet our body's needs, we will develop congestive heart failure. The signs and symptoms are fatigue and the shortness of breath. Most heart failures are usually a direct result from an underlying heart condition such as coronary artery disease.

German and French researchers have discovered that **Vitamin C helps to prevent the cells in the blood vessel wall from dying. In order words, Vitamin C benefits those people with congestive heart failure, who have poor function in the blood vessel walls.**

The damaging form of oxygen in the body is called reactive oxygen that is accumulated in the blood as the condition progresses. This oxidative stress contributes to dysfunction in the endothelium by damaging its cells. As Vitamin C is a potent antioxidant, it helps to remove these cell-damaging oxygen compounds from the body.

During an experiment, investigators gave 34 patients either Vitamin C treatment or an inactive placebo. The Vitamin C patients were first given an intravenous dose of Vitamin C, followed by 3 days of oral supplements. They were all were V on standard drug treatment for heart failure. Prior to treating these patients, the researchers already had first hand knowledge that exposing endothelial cells to Vitamin C kept inflammatory proteins from apoptosis, a form of cell self-destruction. As such, when the blood samples from the patients were tested, they found that **those who received Vitamin C showed less evidence of apoptosis in their endothelial cells.** The placebo patients did not show any changes.

8. Vitamin C Prevents Diabetes

Dr. Farris K. Timimi and his team at the Brigham and Women's Hospital and Harvard Medical School, Boston, Massachusetts, found that the **short-term infusion of Vitamin C improved blood vessel functions in 10 of the patients with diabetes, but not in the other 10 patients who were non-diabetics.**

During the course of study, this team also examined the functions of the endothelium and the layer of cells that lines the insides of blood vessels, which helps them to dilate and contract. They also concluded that **Vitamin C helps to destroy free radicals present in the**

endothelium. These oxygen-derived free

radicals are harmful molecules accumulated in the body as one age.

Infusions of methacholine chloride, a substance that makes blood vessels dilate was given to the patients before and after intravenous Vitamin C administrations. Subsequently, the researchers measured the patient's blood flow in the forearms. Within the diabetic groups, Vitamin C increased the ability of the endothelium to help relax the blood vessels.

In the Journal of the American College of Cardiology, Timimi's team concluded, "This result supports the notion that oxygen-derived free radicals may contribute to abnormal vascular function in patients with diabetes mellitus." The investigators also noted that the blood levels of Vitamin C would be difficult to achieve with over-the-counter supplements.

9. Vitamin C helps hypercholesterolemia

Whether Vitamin C can help people with hypercholesterolemia has yielded mixed results. Most studies are carried out using Vitamin C only and in dosages of below 500 mg. **The lack of consistently positive results may be attributed to the relatively small doses and therefore insufficient intracellular concentrations to effect meaningful change.**

Megadose Vitamin C and Collagen

In addition to the well-established anti-oxidative effects of Vitamin C on the endothelium wall, Vitamin C has yet another important function. Vitamin C helps in the formation of critical collagens responsible for keeping the vascular system pliable and healthy. In the blood vessels, collagen, together with elastic fibers, form an integral part of the sub-endothelial connective tissue just below the endothelium (a single layer of very thin squamous epithelial cell that lines all blood vessels), as well as the external elastic lamina.

What Is Collagen?

Collagen is the **most abundant protein in the human body.** Most proteins such as enzymes and co-factors occur in small amount but there are a few exceptions, notably hemoglobin (in red blood cells) and collagen that exists in abundance throughout the body.

Collagen is omnipresent in our body. It forms the **foundational matrix of our skin, bones, teeth, blood vessels, eyes, heart, and essentially the whole body.** Collagen is stronger than a steel wire of the same weight. When it is combined with elastin and macropolysaccharides, a connective tissue

network forms. It is this network that holds our body together. Collagen is so important in our

bodies that without it, our body will not function. Of all the non-mineral constituents of the mammalian body, collegen forms a large proportion next to water and fats.

Like other proteins, collagen consists of **a long chain of amino-acid call peptides. One molecule of collagen contains about 1000 amino-acids and 16,000 atoms.**

Collagen comprises two important amino acids. They are glycine and hydroxyproline. The polypeptide chain of these two amino acids forms a helix structure. Three of these helical strands form a complete molecule. It actually resembles the components of a rope when coiled together.

How Collagen Is Made

Collagen is a complex molecule, the production of which occurs in several stages. **The amino acids glycine and proline are the two key components.** When they are exposed to Vitamin C, they form a compound called pro-collagen. The exact mechanism is not known, but studies have shown that prolonged exposure of human connective tissue culture to Vitamin C results in an eight-fold increase in the synthesis of collagen and not other proteins. The pro-collagen, a precursor to collagen is then converted into collagen in a reaction that substitutes a hydroxyl group, OH, for a

hydrogen atom, H, in the proline and lyine point of the polypeptide pro-collagen chain. When

Vitamin C is added, this hydroxylation process is catalysed by 2 different enzymes called prolyl-4-hydoxylase and lysyl-hydroxylase. As such, **Vitamin C functions as a catalyst. It has been shown by researcher Myllyla and his team that during this reaction, one molecule of Vitamin C is destroyed for each H replaced by OH. In other words,** one molecule of Vitamin C is actually given up.

The main building blocks of collagen are glycine, proline, lysine and Vitamin C, out of which only proline can be manufactured by the body from glutamine.

It is actually interesting to note that prisoners who have suffered Vitamin C deficiency have wide spread fatty deposits in their arteries.

The Three Musketeers - Vitamin C, Lysine, and Proline

Vitamin C is vital as a catalyst during collagen production. Vitamin C's destruction so as to allow the formation of collagen molecule is another reason why Vitamin C depletion is an on-going process. When a person ages, the wear and tear of collagen will occur. Collagen will therefore have to be continually synthesized to keep the body going at optimum health.

Lysine also plays an important role in collagen synthesis. In addition, Lysine has a strong attraction for a sub-fraction of cholesterol call lipoprotein(a), commonly known as Lp(a). Lp(a) is manufactured by the liver during the cholesterol synthesis process. It is a sticky substance that adheres to the endothelium (innermost layer) of the vascular wall, resulting in plaque formation and attracting other fatty deposits such as LDL cholesterol, calcium and fibrinogen to form a plaque. Lp(a) is an independent risk factor for cardiovascular disease. It is a more sensitive and earlier indicator of atherosclerosis than total or LDL cholesterol.

Lysine has a strong affinity for Lp(a). As such, if we were to flood our bodies with lysine, our bodies will be cleared of this sticky substance and reduce our chances of having heart diseases.

The third non-essential amino acid is proline. It is also a main component of collagen. **When our bodies lack Vitamin C, it causes proline to be lost in the urine as there is a net loss of collagen building in the body. Like lysine,** proline has a high affinity for Lp(a) and therefore able to dissolve plaque. It is said to be even stronger than lysine in this action. It not only prevents further build-up of artherosclerotic deposits, it also helps to release already deposited fat globules from the blood vessel walls into the blood stream.

In a nutshell, the compounds, lysine and

proline, Vitamin C, CoQ10, Vitamin E and Vitamin A prevent artherosclerotic plaque from

forming in the blood vessels. It is also important to note that mega-doses of Vitamin C, proline and lysine are necessary to achieve this effect.

Megadose Vitamin C with Lysine and **Proline**

As mentioned above, megadose Vitamin C (1-10 grams), lysine (1-5 grams), and proline (1-2 grams) are necessary to prevent and cure atherosclerosis and lowering of key cardiovascular markers such as lipoprotein(a).

Well known scientist, Dr Linus Pauling, towards the end of his life at age 94 took about 18 grams of Vitamin C a day. While the RDA is only 80 mg a day for healthy individuals, cancer patients routinely take about 10 to 30 grams daily.

Mega-dose Vitamin C has very little side effects. The most common occurrence is diarrhea and this is a physiological response that reflects tissue saturation and the body's natural way of removing excessive Vitamin C. The amount of Vitamin C intake that leads to diarrhea is called the Bowel Tolerance Level (BTL). This side effect is usually harmless. When we get diarrhea, we just simply reduce our dosage once the BTL is reached.

Sometimes, **mineral ascorbates are preferred**

in mega-dosing as they are less irritating to the gastric mucosa. Bioflavanoids are also added to synergistically improve the oxidation effects of Vitamin C. As Vitamin C is water-soluble and is secreted out from the body relatively quickly, we should **spread the intake regiment throughout the day.**

We can also consider the fat-soluble form of Vitamin C called ascorbyl palmitate. The latter remains in the body longer than water-soluble ascorbic acid as it is fat-soluble and can penetrates into the tissues that the former is unable to do so.

Expensive Urine?

Dr. Mark Levine, National Institutes of Health have raised an interesting fact. He said that a daily intake of 200 mg of Vitamin C is enough to saturate tissue Vitamin C levels. If this amount is exceeded, the extra Vitamin C will be excreted via the urine. As such, Dr. Levine believes that healthy young people may not benefit from Vitamin C intakes of more than 200 mg/day.

However, some of us who are ill may need megadose vitamin C at higher doses. For example, **pregnant women, smokers, the elderly and those with different disease conditions will definitely require higher doses.** Another group of people who will need mega doses are those with **inflammatory conditions, such as rheumatoid arthritis and inflammatory bowel disease.** This is due to the reason that inflammatory cells, when

activated generate a lot of free radicals, which depletes Vitamin C levels. Our bodies will then need to replace it with much more Vitamin C. More Vitamin C in white blood cells is also needed when the immune system is responding to bacterial or viral attack, or when a person suffers from arthritis or diabetes. The exact amount of vitamin C under certain disease conditions or in different patient groups is still not quite clear. However, we do know that animals who are capable of making Vitamin C under stress puts out 4 to 10 times more Vitamin C than they normally produce.

If we know the readings of our blood levels, we should base our Vitamin C intake on the actual measurement of Vitamin C in the plasma, as this will take into consideration inter-individual differences as well as other conditions associated with decreased absorption or increased utilization of megadose Vitamin C. **Some people may require much larger doses of Vitamin C as their absorption of Vitamin C is poor. Others may use it up at very high rates for unknown reasons.** However, this should be reflected in a decreased plasma Vitamin C level and be corrected by the intake of Vitamin C so that the plasma levels are increased into a range associated with tissue saturation and decreased risk for disease.

The dosages of Vitamin C vary amongst individuals. Some people only require 5 grams of Vitamin C to overcome a flu, while others may require 25 grams. The exact requirement depends on each person's body composition

depends on each person's body composition and makeup. There is no universal rule, and individualized titration is required. The body's requirement of Vitamin C goes up **when the person is stressed**. During illness, **the body's bowel tolerance to Vitamin C intake increases as the white blood cells are absorbing more of the Vitamin C. As such, less Vitamin C remains in the bowel to cause loose stools or diarrhea.**

In Dr. Levine's study, plasma saturation in the healthy young men was not achieved until 1,000 mg of Vitamin C daily. The plasma Vitamin C levels increased even at a dose greater than 200 mg/day. For example, at 200 mg of Vitamin C/ day, plasma levels were 65 uM, at 1,000 mg/day about 75 uM and at 2,500 mg/day about 85 uM. Furthermore, "tissue" levels, which were saturated at an intake of 100 mg of Vitamin C a day were only measured in three different types of white blood cells and not in other vital tissues such as the liver or brain. We can therefore see the limitations of these studies.

Side Effects of Vitamin C

The side effects of Vitamin C are often very rare. Some concerns are:

1. Pro-oxidant. Based on in vitro studies, it has been suggested that transition metal ions may convert Vitamin C from an effective antioxidant into a damaging pro-oxidant. Studies conducted

by the Linus Pauling Institute using human plasma and in vivo studies using guinea pigs

have proven that Vitamin C acts as an antioxidant under in vivo conditions and not as a pro-oxidant, even in the presence of large amounts of iron. This hypothesis is therefore not true.

2. Kidney Stones. Urinary oxalate is an important determinant of calcium oxalate kidney stone formation. Since Vitamin C can be metabolized to oxalate, its role as a causative agent when taken in mega dose has been well studied.

During a study using a large group of 85,557 women with no history of kidney stones, semi quantitative food-frequency questionnaires were used to assess Vitamin C consumption from both diet and supplements. The study reported a total of 1078 cases of kidney stones during the 14-year follow-up period. Vitamin C intake was not linked with this risk. The study also mentioned that large doses of vitamin B6 might reduce the risk of kidney stone formation in women. The routine restriction of megadose Vitamin C to prevent stone formation appeared to be unwarranted.

Summary

Hypercholesterolemia, cigarette smoking, hypertension, and obesity are the main culprits for the development of artherosclerotic coronary artery disease (CAD). However, these

account only for half of the cases of CAD. The

other pathologic processes underlying atherosclerosis remains not known.

Atherosclerosis begins in the endothelium of the vascular wall. Insults such as blood toxins and free radicals result in a damaged endothelial wall. This causes a cascade of dysfunctional imbalances usually maintained by the endothelial wall that includes vascular tone (blood pressure control) and homeostasis (coagulation and therefore thrombus formation control). **This imbalance leads to an inflammatory response that attracts oxidized lipoprotein, cholesterol and Vitamin C. The oxidative modification of low-density lipoprotein (LDL) is important due to this proatherogenic effects.**

Our body has an internal "fire-fighting team" to stop the oxidation of LDL as a means of stopping the artherosclerotic process. It does this by using endogenous lipophilic antioxidants such as alpha-tocopherol, beta-carotene and Vitamin C. Vitamin C is the major water-soluble antioxidant in human plasma and is capable of scavenging superoxide anion, which is a major source of oxidative stress.

If we do not have sufficient amounts of vitamin C to effect a constant intracellular concentration, then oxidized LDL and Lp(a) will further attract other oxidized lipids, thus resulting in plaque formation over time. To prevent this, we must flood our bodies with an

abundant supply of Vitamin C and E. It is also important to note that as vitamin E is fat-soluble

and tend to remain in the body, excessive amount can be toxic.

So far, we are very clear that antioxidants prevent endothelium damage, and that oxidized ascorbate is found in artherosclerotic plaques.

Megadose vitamin C, in conjunction with lysine and proline, are important building blocks of collagen and the supporting matrix of the vascular wall. During the aging process, the wear and tea of collagen fibers must be replaced and maintained. These three nutrients will ensure that the substrates needed for optimum collagen building and maintenance is present. As **lysine and proline have unique features of having a high affinity for sticky lipoproteins, plaques that are already formed can be dissolved and carried out from the body.**

The three natural compounds, Vitamin C, lysine and proline forms a mighty trio in the fight against atherosclerosis from at least three pathways:

1. Prevent endothelial damage that normally leads to inflammatory response and lipoprotein adhesions.
2. Dissolve existing plaque by binding with lipoprotein and washing them out from the body.
3. Building collagen and maintaining pliable vascular integrity normally lost during the

vascular integrity normally lost during the aging process.

Today, there is great concern that the Western diet is high in saturated fats and trans fats, low in complex carbohydrates, high in carbohydrates and deficient in fresh fruit and vegetables. The adoption for this form of diet has contributed greatly to the epidemic of heart disease in the developed world.

Studies have shown that a deficiency of the essential vitamins and minerals may contribute to impaired endothelial function and coronary artery disease. As such, we should supplement our bodies with Vitamin C, lysine, and proline so as to prevent ourselves from getting heart problems.

Dr. Lam Coaching Review

★★★★★

"Thank you for all of your advice"

"Thank you for all of your advice and help. I love how knowledgeable you are and all the help you give people through your sessions and website."

- Shannon M.

Dr. Lam Coaching

Worldwide Nutritional Coaching Since 2001.

2492 Walnut Ave Suite 101
Tustin, CA 92780, USA

+1 (626) 571-1234
+1 (888) 375-2688 (Toll Free)

Adrenal Fatigue Recovery

Concepts

Symptoms

Lifestyle

Recovery

Complications

Testing for AFS

NEM Nutritional Program

Hormone

Bioenergetics

Detoxification

Inflammation

Neuroaffect

Cardionomic

Information Quick Links

About

Contact

Coaching Services

Diet

Blog

Video Channel

* Dr. Lam in our products and services refers to Dr. Michael P. Lam, MD, founder of DrLam.com and DrLamCoaching.com. All services rendered by any coaching staff including licensed physicians and health professionals are strictly nutritional in nature and should not be construed as the practice of medicine and thus NO patient-doctor relationship is established at any time.

** Cost of program varies and will be discussed at time of consultation at absolutely no

obligation for those who qualify. Nutritional coaching has its limitations and is not for everyone and there is no guarantee of acceptance into the program.

The Cure for Heart Disease: Condensed

By Owen R. Fonorow, Copyright 2004

'READER'S DIGEST' VERSION

Cardiovascular Diseases Those few species that fail to synthesize ascorbic acid (vitamin C) are prone to a form of ‘heart disease’ that is not prevalent in other species. The theory that Cardiovascular Disease (CVD) is related to a deficiency of vitamin C was first proposed by the Canadian physician G. C. Willis in 1953. He found that atherosclerotic plaques form over vitamin-C-starved vascular tissues in both guinea pigs and human beings. In 1989, after the discoveries of the Lp(a) cholesterol molecule (*circa* 1964) and its lysine binding sites (*circa* 1987), Linus Pauling and his associate Matthias Rath formulated a unified theory of heart disease and invented a cure. Vitamin C and lysine (and proline) in large amounts become ***Lp(a) binding inhibitors*** that restore vascular health and are patented to destroy atherosclerotic plaques.

Chronic scurvy. Heart disease is a misnomer; the underlying disease process reduces the supply of blood to the heart and other organs leading to angina ("heart cramp"), heart attack and stroke. The disease is characterized by scab-like build-ups that grow on the walls of blood vessels. The correct terminology for this disease process is ***chronic scurvy***, a slower form of the classic vitamin C deficiency disease.

The hypothesis that CVD is an ascorbic acid (vitamin C) deficiency disease was first conceived and tested in Canada. Willis devised a method of photographing plaques with X-rays and observed that atherosclerotic

plaques were not uniformly distributed throughout the vascular system; rather these "blockages" are concentrated near the heart, where arteries are constantly bent or squeezed.

Another Canadian, Paterson, had found that the tissues of heart patients were generally depleted of vitamin C, and it was well known that vitamin C is required for strong and healthy arteries. Willis reasoned that only the mechanical stress caused by the pulse could explain the typical pattern of atherosclerosis. To Willis, the body was laying down plaque precisely where it was needed in order to stabilize the vascular system.

By the late 1980s, medical researchers had made several intriguing discoveries.

First came the discovery that heart disease begins with a lesion, a crack or stress fracture, in the arterial wall. The question became, and remains, as to the cause of these lesions in human beings since they do not arise in most other animals. Then a variant of the so-called "bad" LDL cholesterol called lipoprotein(a), or Lp(a) for short, was studied and found to be *really* bad. Lp(a) is sticky because of receptors on the surface of the molecule called ***lysine binding sites***. Work that led to the 1987 Nobel prize in medicine discovered that lysine (and proline) binding sites cause the formation of atherosclerotic plaques. Then, Beisiegel *et. al.* in Germany examined plaques post mortem and found only Lp(a), not ordinary LDL cholesterol.

Lp(a) was the genetic difference between beings that suffer cardiovascular disease and those that do not. Lp(a) had evolved only in species that do not make their own vitamin C - e.g. humans and guinea pigs.

Pauling and Rath repeated the earlier Willis experiments, but this time they monitored Lp(a). They discovered that it becomes elevated in guinea pigs

deprived of vitamin C, but not in the controls. These experiments connected elevated-Lp(a) with low serum vitamin C. They realized that in most species, sufficient ascorbic acid will prevent stress fractures, but in those species that suffer chronic scurvy, Lp(a) had evolved to patch cracked blood vessels.

As chronic scurvy progresses, the liver produces more Lp(a) molecules. As the number of Lp(a) molecules increases, they tend to deposit on top of existing plaque formations. When the healing process overshoots, the arteries narrow and the flow of blood is reduced.

This problem has a solution. The Lp(a) molecule has a finite number of lysine binding sites - points of attachment to lysine. Pauling's invention - the cure for heart disease - is to increase the serum concentration of the amino acid lysine enough to make the Lp(a) unattractive. As more lysine enters the blood stream, the probability increases that floating Lp(a) molecules will bind with it (*rather than with the patches of plaques growing on the arterial walls*.)

After all the Lp(a) molecule's binding receptors are filled with the free lysine floating in the blood, the Lp(a) molecule becomes as harmless as ordinary LDL cholesterol.

Pauling and Rath called the substances that treat chronic scurvy and destroy existing plaques ***Lp(a) binding inhibitors***. Vitamin C, to increase collagen production and to improve the health and strength of arteries, and lysine, to prevent and to dissolve Lp(a) plaques, are the primary binding inhibitors. These substances taken together are clinically effective.

Linus Pauling believed that chronic scurvy can be prevented with an orthomolecular daily intake of between 3,000 to 10,000 mg or more vitamin C. This amount approximates what the animals synthesize, and

matching animal production is the reason Pauling ingested 18,000 mg daily.

Pauling and Rath's invention for destroying existing atherosclerotic plaques is the large amount of another essential nutrient, the amino acid lysine. Pauling filmed a video lecture in which he recommended that heart patients take between 2,000 and 6,000 mg of lysine daily with their vitamin C (more if serum Lp(a) is elevated). Neither vitamin C nor lysine have any known lethal dose.

The Lp(a) binding inhibitors become the ***Pauling Therapy*** for heart disease only at high dosages, between vitamin 3 to 18 g ascorbic acid and 3 to 6 g lysine. In his video, Pauling recounts the first cases where his high vitamin C and lysine therapy quickly resolved advanced cardiovascular disease in humans. The effect is so pronounced, and the inhibitors are so nontoxic, that Pauling doubted a clinical study was even necessary.

Recently, the amino acid proline was found to be an even more effective Lp(a) binding inhibitor than lysine *in vitro*. Adding between .5 and 2 g proline may be of significant additional benefit.

When serum Lp(a) is elevated, Lp(a) binding inhibitors can profoundly interfere with the disease process. Binding inhibitor formulas that include proline have been documented to lower Lp(a) in six to 14 months. In cases where Lp(a) is not reduced, binding inhibitors become even more important to neutralize Lp(a) regardless of their effect on serum Lp(a).

Recently a reevaluation of the Framingham Heart study that Lp(a) and not ordinary LDL is highly predictive of CVD and Oxford found that elevated Lp(a) increases the risk of heart attack and stroke by 70%.

The on-going lack of scientific curiosity or interest by organized medicine in the Pauling/Rath theory and Pauling's high-dose therapy may well be recognized as the greatest lapse of the 20th century.

Heart disease orthomolecular protocol

NOV 2005: UPDATED PROTOCOL HERE

1. **Take Vitamin C** as ascorbic acid (*or sodium ascorbate, but this form may be less effective*) up to bowel tolerance (**3 to 18 g per day** in divided doses.)

   The half-life of vitamin C in the blood stream is 30 minutes. NIH findings indicate minimum 500 mg every 4 hours leads to highest sustained blood levels, take more before bed, trips, etc. Trouble with bloating/gas/diarrhea after your vitamin C? Try Liposomal Vitamin C
2. **Take Lysine. 2 to 3 g daily** for prevention and from **3 to 6 g daily** for the greatest therapeutic benefit**.**
3. **Supplement Coenzyme Q10 (**100 - 300 mg) (Note: Vitamin C and several vitamins will help stimulate your own synthesis of CoQ10. CoQ10 is a vital substance for energy and proper heart function. Popular drugs interfere with your body's own production of CoQ10, and they may lead to heart failure)
4. **Take Proline** from 250 mg to 2000 mg daily. (This added factor may lower elevated Lp(a) within 6 to 14 months.)
5. NEW: Eliminate man-made/processed fats, such as trans and hydrogenated fats, and supplement Omega-3 rich oils. "Research has

shown that an Omega-3 Index of 8 percent to 10 percent reduces a person's relative risk of death from coronary heart disease by 40 percent, and from sudden cardiac death by 90 percent." This benefit probably results from restored insulin-mediated glucose/vitamin C uptake into cells. [See: Protocol for Reversing Diabetes Type II by Eliminating Hydrogenated and Trans Fats and adding Omega-3 oils...]

Note: Following an Atkins-style diet will eliminate most trans fats because these "poisons" appear mostly in processed carbohydrate foods such as cookies, crackers, snacks, etc. Butter is vastly supperior to margarine. Natural saturated fats are vastly superior to any fats or oils processed for longer shelf life.

6. NEW: Eliminate ordinary sugar and refined carbohydrates. New research confirms Dr. John Ely's 30-year theory that sugar (glucose) competes with ascorbic acid (Vitamin C) for insulin-mediated uptake into cells. Taking sugar can effectively crowd out the Ascorbate. The effect of the Pauling Therapy is reportedly much more pronounced and immediate when sugar is eliminated (and good Omega-3 fatty acids are added.)
7. **Follow Paulings general heart and cardiovascular recommendations** provided in his book *HOW TO LIVE LONGER AND FEEL BETTER* , e.g., Vitamin E - 800 to 3200 iu ,Vitamin A - 20,000 to 40,000 iu , andSuper B-Complex, esp. Vitamins B6 and B3
8. **Supplement the mineral Magnesium** (300 to 1500 mg) and avoid Manganese (No more than 2 mg. USDA researchers report that elevated manganese, more than 20 mg daily, competes with magnesium uptake in the heart causing irregular heart beats.)

Manganese alters mitochodrial integrity in the hearts of

swine marginally deficient in magnesium ... *These results suggest that high Mn, when fed in combination with low Mg, disrupts mitochondrial ultrastructure and is associated with the sudden deaths previously reported.*

9. **Eat salt, only unrefined salt,** Brownstein discovered literature that a low-salt diet can cause the body to change its hormonal balance as it attempts to retain sodium. This leads to a 400% chance of heart attack in those with high blood pressure and low sodium intake [*]. Refined (ordinary table salt) is poisonous, but unrefined salt has over 80 minerals and can be considered a necessary "health food."
10. A**void supplemental calcium**, and supplement vitamin K for proper calcium metabolism, especially if you have taken antibiotics or blood thinners in the past.
11. **Add a good mineral/multivitamin**
12. Supplement the amino acids **Taurine, Arginine and Carnitine (1 to 3 g).**

Owen Fonorow, Naturopath
Vitamin C Foundation
PO Box 3097, Lisle IL 60532
www.VitaminCFoundation.org
630-416-1438

VitaminCfoundation.org
TheCureForHeartDisease.com
PaulingTherapy.com
Hearttechnology.com

From the Townsend Letter
May 2017

Order this issue!

Stop Fixing the Adaptive Response: Why Cardiovascular Disease Should Be Named Chronic Scurvy

by Daniel Cobb, OMD

Originally published in the Well Being Journal, *September/October 2016*

Page 1, 2

Note: In this article, the terms "chronic scurvy," "heart disease," and "cardiovascular disease" (CVD) refer to the accumulation of damage, most commonly in the coronary arteries, that is associated with high blood pressure, plaque deposits, and the increased incidence of heart attacks. This condition is also known by several other terms, such as "coronary artery disease" (CAD), "atherosclerosis," "hardening of the arteries," and "coronary heart disease" (CHD).

Introduction

Linus Pauling, PhD, championed a nutritional treatment for CVD/chronic scurvy called Pauling Therapy. It is based on research into the relationship between CVD and vitamin C and was first publicly described in 1991. In the 25 years since, despite its exceptionally high success rate, this therapy has rarely been used by mainstream cardiologists.

This article discusses renaming the condition from CVD to "chronic scurvy," which would focus attention on the true location of the pathology and, ideally, lead many more people to use Pauling Therapy to treat CVD.

The History of Pauling Therapy

The earliest known public pronouncement of the Pauling Therapy was in 1991, when Linus Pauling and Mathias Rath, MD, examined a body of research and concluded that there was a connection between vitamin C and CVD. That connection was based upon the observation that CVD is, at its core, an accumulation of damage to the collagen and elastin fibers in the artery walls. Vitamin C is required for the creation of replacement collagen fibers, as discussed in Pauling and Rath's resulting 1992 paper. Pauling and Rath's paper concludes:

> In this paper we present a unified theory of human CVD (cardiovascular disease). This disease is the direct consequence of the inability of man to synthesize ascorbate in combination with insufficient intake of ascorbate in the modern diet. Since ascorbate deficiency is the common cause of human CVD, ascorbate supplementation is the universal treatment for this disease. The available epidemiological and clinical evidence is reasonably convincing. Further clinical confirmation of this theory should lead to the abolition of CVD as a cause of human mortality for the present and future generations of mankind.[1]

Such was the success of their treatment therapy that perhaps Pauling and Rath then dusted off their hands and thought to themselves, "Done with that disease." Unfortunately, the rest of the world has moved at a glacial pace in taking advantage of their breakthrough ideas.

Although Pauling and Rath's resulting treatment has yet to hit mainstream medicine, it has not fallen entirely on deaf ears. The small group of people who are confident to research their own medical challenges and make their own medical decisions have frequently discovered some version of Pauling Therapy and are routinely reversing their CVD/chronic scurvy.[2] But what about the vast majority of people who depend upon conventional medicine for their heart disease treatment choices? When will they be advised by their cardiologists that their heart disease can be reversed in a matter of months instead of being mired in a managed disease for the rest of their lives? What follows is an attempt to point out what has gone wrong and how it might be fixed.

The Conventional Viewpoint

The conventional viewpoint for preventing and treating CVD is to focus the discussion on the plaque deposit-blood clot combination.

A person's perspective of plaque deposits may be theoretical—as in the case of a relative or friend—or it may be more visceral, as in the case of a medical professional or coroner. Once an individual sees the big, ugly plaque deposits that certainly played a large part in killing a friend or family member or patient, their attention is held. Upon examination, this deadly glob, which looks as far away from a healthy artery as possible, invokes a sense of repulsion. It then dominates the person's emotions and thoughts about treatment and prevention.

Doctors are often asked to look at a system that has failed, analyze what went wrong, and propose a solution. In the case of death from heart attack in a patient in whom a plaque deposit suddenly became 100 percent blockage, doctors instinctively look at the plaque deposits and then work backward. Almost all medical proposals refer to the deadly plaque deposit. Medical professionals discuss the fatty nature of the plaque, the cholesterol, the calcium buildup, the blood clot, how to remove these problems, and how to prevent them.

The medical community has been proposing solutions for heart attacks caused by these plaque-blood clot combinations for decades, but heart disease still remains the number one disease cause of death.[3]

A Holistic Viewpoint

The holistic approach for treating CVD is quite different. To understand how the nutritional treatment of chronic scurvy works, the plaque deposits must be viewed from a different perspective. If the disease itself is to be found, the area *underneath* the plaque deposits must be examined. It is there that weak and damaged artery walls are found. Patients who have plaque deposits in the coronary arteries have chronic scurvy.

Scurvy is essentially a bleeding disease. Chronic scurvy differs from "normal" scurvy only in degree and the body's response. Both have at their core the inability to repair and replace collagen fibers in the vascular tissue, which leads to the resulting failure of that vascular tissue to contain the blood. The difference between the two conditions of scurvy appears because whereas scurvy results from several months of near-zero levels of vitamin C, chronic scurvy results from years, if not decades, of inadequate levels of vitamin C, which allows the body a chance to mount a secondary defense.

Relevant comments from the Pauling and Rath paper state:

> The invariable morphological consequences of chronic ascorbate deficiency in the vascular wall are the loosening of the connective tissue and the loss of the endothelial barrier function. Thus human CVD is a form of pre-scurvy.
>
> The multitude of pathomechanisms that lead to the clinical manifestation of CVD are primarily *defense mechanisms aiming at the stabilization of the vascular wall* [emphasis added]. After the loss of endogenous ascorbate production during the evolution of man these defense mechanisms became life-saving. They counteracted the fatal consequences of scurvy and particularly of blood loss through the scorbutic vascular wall.[4]

The arteries are a high-pressure system compared to the veins, and a primary purpose of the artery is to contain the body's blood. If enough damage accumulates in one area of an artery, it may become weak enough that breakthrough bleeding occurs.

Whenever there is damage to artery walls, the first order of business is to repair the damage. These repairs require a collection of nutrients. But what happens if one or more of those nutrients are absent or in short supply? Repairs get backlogged, and the arteries get weaker.

When the arteries get to the point where breakthrough bleeding becomes a danger and the required repairs cannot be made due to nutrient deficiencies, the body has a "Plan B." It builds up a layer of material on the inside of the artery wall to protect the damaged artery wall against the force of the blood pressure. This, of course, is plaque deposits but could be called "nature's perfect Band-Aid." This phrase can be used to remind people that the plaque deposits are *not pathological* but instead are an *adaptive response* to weakened artery walls. The body purposely develops plaque deposits, and they are saving the patient's life by preventing the possibility of breakthrough bleeding.

A quote from the Pauling and Rath paper shows that this idea was proposed 25 years ago:

> The genetic countermeasures are characterized by an evolutionary advantage of genetic features and include inherited disorders that are associated with atherosclerosis and CVD. With sufficient ascorbate supply these disorders stay latent. In ascorbate deficiency, however, they become unmasked, leading to an increased deposition of plasma constituents in the vascular wall and other mechanisms that thicken the vascular wall. This thickening of the vascular wall is a defense measure compensating for the impaired vascular wall that had become destabilized by ascorbate deficiency.[5]

The positive resolution of this scenario involves making sure that the nutrients required to catch up on the backlog of vascular tissue repairs are in abundant supply. When these nutrients are adequately supplied and the arteries are repaired (thus removing the reason for the plaque deposits), plaque deposits gradually disappear on their own.

Treating chronic scurvy nutritionally, because it directly addresses the cause, almost always works.[6] This is why**,** in this author's clinic, there is a saying that heart disease is easier to treat than low-back pain.

Why Name This Disease "Chronic Scurvy"

The following is a discussion of two different approaches to address CVD/scurvy and how terminology makes a difference in the prescribed treatment.

Let's look at an example of a patient who consults with a holistic, nutritionally oriented physician. The doctor names the patient's disease "atherosclerosis," which describes the complex development of the plaque deposits in a major artery. The holistic doctor and the patient discuss a nutritional treatment in terms of how it would heal and remove the plaque deposits. When the patient leaves the consultation, his attention is focused on the plaque deposits. The patient then often returns to his cardiologist and asks, "How do I get rid of my plaque deposits?" Most of the time, the cardiologist will steer the patient into conventional treatment because conventional treatment appears to be designed to fight those "deadly plaque deposits." These patients will manage their chronic disease for the rest of their lives.

In a second example, a patient consults with a holistic, nutritionally oriented health care professional. This doctor and the patient discuss the patient's condition using the term "chronic scurvy." It is made clear to the patient that this is a disease of weakened connective tissue in the arteries, and the discussion centers around which nutrients are required to repair connective tissue. When the patient leaves the consultation, her focus is on treating chronic scurvy by nutritionally facilitating repairs to the artery walls.

The patient then wants to discuss this treatment recommendation further with her cardiologist. She asks her cardiologist, "How do I treat my scurvy?" Almost everyone who has grown up in the United States learned in grammar school that European explorers frequently died from scurvy when they were on long voyages and that scurvy was later determined to be caused by a vitamin C deficiency. So, the discussion in the doctor's office starts with vitamin C. Looking further into the disease, the patient will learn that scurvy is a connective tissue weakness that results in internal bleeding. Other nutrients to support collagen and connective tissue production may be added to the treatment.

It is worth noting that the nutritional protocols outlined by the two holistic doctors are probably almost identical, and both would work to reverse the disease. The difference is that naming the disease "scurvy" rather than "atherosclerosis" keeps the focus on the actual pathology in the artery walls. In this way, the treatment focus stays on the integrity of the arteries and does not wander back to the plaque deposits.

Consult your doctor before using any of the treatments found within this site.

360.385.6021
Fax: 360.385.0699
info@townsendletter.com

From the Townsend Letter
May 2017

Order this issue!

Stop Fixing the Adaptive Response:
Why Cardiovascular Disease Should Be Named Chronic Scurvy
by Daniel Cobb, OMD

SEARCH

Page 1, 2

Medical Writers and Medical Researchers Make This Same Mistake

One might think that what a disease is named would have almost no effect on how it is researched and treated; but in the case of heart disease, a quick examination of information shows otherwise.

Medical writers and medical researchers tend to focus on plaque deposits. This author has reviewed many peer-reviewed journal articles on topics such as tracking and evaluating the "calcium score," using vitamin K2 to reduce calcium levels in plaque deposits, raising HDL and lowering LDL and total blood cholesterol, analyzing the ratios of HDL to LDL cholesterol, examining the dangers of oxidized cholesterol, tracking and lowering blood lipoprotein(a) levels, lowering blood triglycerides, and lowering the consumption of saturated fat. All of these approaches to treatment of CVD share the same problem. They address the problem of plaque deposits, thereby attacking the body's adaptive response to the underlying problem.

Unfortunately, no amount of treatment of an adaptive response is going to cure a major disease. Simultaneously, the real pathology of the damage to the artery walls is being ignored. It is as if people got lost in the desert of the "lipid hypothesis" of Ancel Keys in the 1950s and then, for the past six-plus decades, haven't been able to find their way back out.

The Prescription

Thus far, this article has discussed the vitamin C treatment for chronic scurvy in general terms. The actual formula is not so simple. The basic formula for Pauling Therapy includes vitamins C and E, zinc, copper, sulfur, and a couple of amino acids. Other optional nutrients can be added. Also, dietary improvements always help but are difficult to describe in a short article.

What follows is a common prescription used by the author's clinic for a chronic scurvy patient. Other doctors are likely to use similar nutritional prescriptions. As long as they contain an abundance of vitamin C, full-spectrum vitamin E, sulfur, and L-lysine, and also address the copper-zinc status of the patient, the treatment should work well.

In general, recommending specific brand names for vitamins and nutrients is best avoided; but when there are dramatic differences in the benefits received between brands, recommending the best and highest-quality products available is obligatory. Such is the case in the recommendations to follow.

Nutritional Supplement Recommendations for Treating Chronic Scurvy

Vitamin C (pure ascorbic acid, not mineral ascorbates) – six or more grams per day, taken in

small doses throughout the day. Vitamin C is required for the production of collagen and elastin fibers. It is also an important antioxidant that prevents free-radical damage.

Small doses of vitamin C in the form of mineral ascorbates might be safe to take; but at the recommended high doses here, the minerals used to make the ascorbate may develop into an overdose of minerals or create mineral imbalances. Purified L-ascorbic acid (the active isomer) is important because if the vitamin C is not purified L-ascorbic acid, then only half the indicated dose of vitamin C is actually obtained. The other half is D-ascorbic acid, which is not true vitamin C.[7]

Not all vitamin C is equally useful to the body. It is worthwhile to spend a little more money for the highest-quality product to get the most effective result, especially when treating an advanced case of chronic scurvy. There are three characteristics that are problematic with inexpensive vitamin C: 1) The product is not purified for the l-isomer; 2) the vitamin C is derived from corn starch; and 3) the product is manufactured in China. It is important to note that almost all high-dose vitamin C that does not specifically state to the contrary has all three of these problems.[8]

The vitamin C from the Vitamin C Foundation[9] is recommended. They sell only purified L-ascorbic acid, their vitamin C is never derived from corn, and it is never manufactured in China.

L-lysine – 6 grams per day; L-lysine is used in the production of collagen fibers and causes the release of plaques in very small pieces, which avoids embolisms.[10]

L-proline – 1 gram per day; L-proline is similar in function and effect to L-lysine.[11]

Vitamin E – Between 400 and 800 mg per day; like vitamin C, vitamin E is an important antioxidant. Including vitamin E in a treatment formula relieves the vitamin C of much of its antioxidant responsibilities so that more vitamin C can be used to produce collagen fibers. Vitamin E is also a mild anticoagulant.

Be sure to take Vitamin E products that provide all four tocopherols and all four tocotrienols. The best result for treating coronary artery disease (CAD) is obtained by taking a full-spectrum vitamin E that is highest in d-gamma tocopherol, because the gamma form of tocopherol is known to be the most effective form of vitamin E for the prevention and treatment of heart disease.[12] Some studies for CVD are designed to fail by using only d-alpha tocopherol, which does not do much to treat CVD and will actually suppress the levels of all the other types of vitamin E, including the gamma tocopherol.[13]

The company A. C. Grace makes a product called "Unique E,"[14] which provides both tocopherols and tocotrienols (in two different bottles). These high-quality products are recommended for best results.

Organic Sulfur – For best results, take one teaspoon of organic sulfur in chlorine-free water on an empty stomach upon waking in the morning. Wait 30 minutes before eating or drinking anything.

Organic sulfur delivers oxygen to cells, is excellent at removing a wide variety of toxins, and is required to form disulfide bonds in the creation of collagen fibers.[15] Organic sulfur is also known as MSM, but look for products that are described as "organic sulfur" because they tend to be more

pure and therefore more effective. The only downside to organic sulfur is that it also "sulfates out" some beneficial minerals. Consequently, some users may develop mineral-deficiency problems after some months of use. To prevent long-term mineral deficiencies, increase the dose of magnesium and add a multi-mineral supplement.

Magnesium (citrate or chelated) – 400 mg per day; magnesium helps to keep energy levels up and helps to maintain a good heart rhythm.[16] Magnesium is also a mild anticoagulant.

Co-Enzyme Q10 – 100 mg or more per day.

The heart uses more Co-Q10 than any other tissue in the body because Co-Q10 enables the use of higher amounts of energy. This nutrient is critical to CVD patients, where hypertension is common. Hypertension (high blood pressure) means that when the heart pumps blood, it has to pump against a higher pressure; thus, the heart has to work harder and requires more energy. Statin drugs suppress the body's normal creation of Co-Q10, so many CVD patients are weakening their hearts by taking statins.[17]

Vitamin K – 100 micrograms (mcg) per day; vitamin K is a natural blood coagulant.[18]

Blood clots and the effects of blood-thinning drugs are sensitive topics for CAD patients. Vitamin K is included in this list to neutralize the anticoagulant effects of magnesium and vitamin E. This results in an overall formula that is roughly neutral in its coagulant/anticoagulant effects.

Copper – 2 mg per day
Zinc – 20 to 30 mg per day

Copper and zinc work in opposition. High copper levels depress zinc, and high zinc levels depress copper. Copper is necessary for the production of collagen fibers and is an essential part of artery wall repairs.[19] An overdose of copper usually results in nausea, digestive problems, and occasionally mania.

Zinc is useful for the immune system and for tissue repair (such as for the artery wall).[20] An overdose of zinc depresses the immune system.

Consider buying copper in a copper/zinc combination supplement so the two minerals do not get out of balance.

Vegetarians are likely to be deficient in zinc and are much more prone to copper overdose, so consider supplementing the zinc and relying on diet alone for copper.

People who have copper water pipes probably do not need to supplement copper because they get enough copper from drinking and cooking with their tap water.

B Complex – Use dosage recommended on the label; vitamins B6, B12, and folic acid, the vitamins found in B Complex formulas, dramatically reduce high homocysteine levels that damage artery walls.[21]

Rutin – 500 mg per day; rutin is a bioflavonoid that assists vitamin C in its functions.[22]

Omega-3 Fats (fish oil or flaxseed oil) – Between one teaspoon and one tablespoon per day.

Many studies have indicated that fish oil can be quite valuable in keeping the heart healthy.[23]

However, these highly volatile unsaturated fatty acids are prone to rancidity. If a spoonful tastes bad, the product has turned rancid to the point that it is doing more harm than good. Throw it away and get a fresh bottle. Buy a small bottle so it can be used up while it is still fresh. Fish oil gel caps can also go rancid, but the gel caps conceal the taste. Once a week, bite one open and taste it to see if it is rancid.

It is important to take high-quality vitamin E while taking omega-3s; vitamin E protects omega-3s from oxidation after they are absorbed.

Conclusion

The pathology in heart disease is damaged artery walls. Plaque deposits are an adaptive response, like a Band-Aid over a damaged area, to prevent breakthrough bleeding. Treating an adaptive response does not heal the underlying problem. Treating plaque deposits with cholesterol reduction, manipulation of the HDL/LDL ratio, and other standard treatments are the logical equivalent to treating a skin abrasion by picking at the scab. On the other hand, providing an abundant supply of the nutrients required to repair arterial damage works almost every time, and it is less expensive. This approach uses normal body processes to heal naturally.

In order for the Pauling Therapy to become a mainstream practice, professionals need to realize that cardiovascular disease should be properly named "chronic scurvy," a bleeding disease brought on by damage to the artery walls. Treatment should start much as one would treat scurvy: with high and frequent doses of vitamin C along with a few additional, related nutrients. The focus should be almost exclusively on the efficient repair of the artery walls. Plaque deposits are not the pathology but are, instead, an adaptive and protective response to the damaged artery walls. Once the artery walls are repaired, the "dreaded" plaque deposits will disappear on their own.

Page 1, 2

References .pdf

Daniel Cobb is a Doctor of Oriental Medicine who practices in Santa Fe, New Mexico. He focuses on nutrition, detoxification, and control of the environment to treat chronic conditions and degenerative diseases. He can be reached at danielcobb2@yahoo.com or by calling 505-424-9527. Visit his website at http://danielcobbdom.com.

Vitamin C Therapy - How It Helped Me

Please take the time out to listen to the 12-minute video below. It's my personal story and details a simple vitamin C therapy protocol that has literally saved my life and changed the lives of all the people that care for me. The information is 100% free and I hope that in sharing it I may also help others that have been diagnosed with heart disease. If you prefer, I have also laid out the important parts below in the text as well.

My name is Tony Jones and I lost my father to a heart attack just 4 days before my 13th birthday (I am 55 years old now), he was just 40 years old at the time. He had been diagnosed with having high cholesterol for some time and had been put on a an extremely low-fat diet. This was back in the days before we actually knew about HDL and LDL cholesterol (the good and bad types). Needless to say, the loss of my father was devastating for our family.

Aaron and I on Vacation

Ask us

Anyway, fast forward around 25 years and now I am a father of a young boy myself (Aaron) and was

before.

Some years earlier my sister, who's a nurse, informed me that I have familial hypercholesterolemia, a [illegible] bility to remove LDL. Because of this I would have high LDL levels, which I did at that time.

My physician wanted to get me started on **Statins** right away, but I had heard some disturbing things about nasty side effects and that once started they were dangerous to stop, so it would mean taking prescription meds for the rest of my life!!

Before I could agree to that I decided it was time to really educate myself on what was really going on inside my body and I began serious research on the Internet.

I Had So Many Questions!

- **Does dietary intake of animal fats have much impact on cholesterols levels in the blood? Does the fat we eat literally clog up our arteries?**
- **How does the clogging and narrowing of the arteries develop? I knew it didn't happen overnight.**
- **Do other creatures in the animal kingdom suffer from Atherosclerosis?**
- **Is arterial plaque deposited in a uniform way around our circulatory system?**

These initial questions led me to some very interesting articles by different scientists and doctors, it felt like bit by bit pieces of this puzzle were coming together. Until one day I found the work of Linus Pauling in the form of his "Unified Theory of Cardiovascular Disease", released in the 1990s.

Well known as the greatest chemist of the twentieth century, Linus Pauling is the only person to ever win the two unshared Nobel prizes.

Linus Pauling

Pauling said arterial plaque was the result of the body trying to repair damage caused by a long-term vitamin C deficiency. He believed heart disease was a form of low-level scurvy (yes, the disease that used to strike sailors of old on long ocean voyages) and that the plaque was due to the body reinforcing and patching up weakened areas of the blood vessels that would otherwise rupture.

Pauling also showed that heart disease could be prevented or treated by taking vitamin C and other supplements. Just as carrying limes and other citrus fruits on ships became the norm when we found out it stopped the dreaded scurvy.

Pauling's Revolutionary Theory Was Developed On Several Important Scientific Findings:

FIRSTLY: Plaque deposits found in human aortas are made from a special form of cholesterol called Lipoprotein a or Lp(a), not from ordinary LDL cholesterol. Lp(a) is a special form of cholesterol that forms the thick sheets of plaque that obstruct arteries.

SECONDLY: Plaque deposits are not deposited uniformly around the circulatory system, instead, they only occur at sites near the heart, on bends, and where mechanical pressure is great. These ar e the artery gets stretched and bent with every heartbeat.

AND LASTLY: That plaque only forms in parts of the artery that are damaged from this constant bending and stretching. As tiny cracks appear in the artery wall, Lysine a component of collagen is slowly released. This lysine attracts Lp(a) to the site of the crack and as time progresses the sheets of Lp(a) deposit on top of each other and start to develop into a dangerous blockage.

As Pauling observed the process of plaque formation, which was similar to that of scurvy, he also noticed other clues that support his theory.

#1. ATHEROSCLEROSIS DOES NOT OCCUR IN ANY ANIMALS THAT PRODUCE THEIR OWN SUPPLY OF VITAMIN C.

#2. ONLY ANIMALS THAT DON'T PRODUCE VITAMIN C ARE ABLE TO PRODUCE LPa. THAT'S HUMANS, APES, AND GUINEA PIGS

PLEASE STOP RIGHT NOW TO CONSIDER THOSE TWO POINTS!

They show the direct link between Vitamin C deficiency and Heart Disease!

There have also been animal studies that have been found to support his theory. Studies on animals such as guinea pigs which cannot produce their own Vitamin C show that when dietary vitamin C levels are restricted, collagen production drops, and the blood vessels become weaker and thinner. At the same time, the animal begins to increase the blood levels of Lp(a) and plaque is seen to form at points of potential rupture and damage.

The more I researched, the more evidence I found, and the more people I found talking about this. Of course, you will not find very much mainstream information out there as there is no way to patent a vitamin C supplement for Heart disease and **NO MONEY** in it for big pharmaceutical companies, especially compared with their very lucrative Statins drugs.

My Results!

So instead of starting on Statins as my physician insisted, I began taking the **Pauling therapy mix of Vitamin C, Lysine, and Proline every day.**

I kept appointments with my doctor, and he checked my cholesterol levels regularly and noticed some improvement, especially in the ratio of HDL to LDL, which I believe is particularly important. We didn't see a huge drop in my LDL levels, which was to be expected due to the FH gene I mentioned earlier. **My blood pressure had improved a lot as well.**

He still wanted me to begin statins, but I still resisted. I was nearing the fateful age of 40, and so I found a hospital that had a CT scanner, this was fairly new technology at the time and there was only one machine in the country and the test was expensive, but I really needed to know if I had made the right decision to avoid the statins and instead rely on the Pauling protocol. So, I booked an appointment and had the 64 slice CT scan in the evening and then went back for the results the next day.

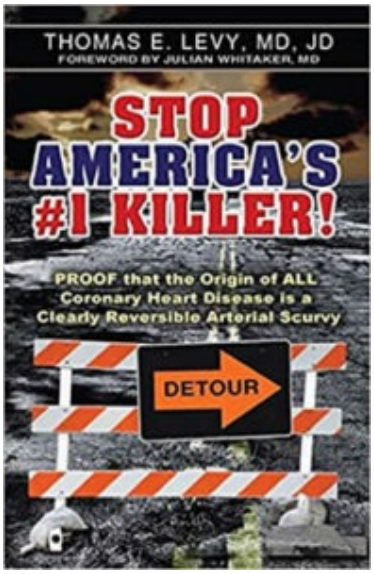
I was of course very nervous, but I did "feel" really good and I had looked after myself with diet and exercise as well. But now was the moment of truth. The doctor I met with had a kind of confused look on her face as she explained that my results, we remarkable for a 40-year-old man, I had only very small trace amounts of calcium build up in some minor capillaries and my main arteries were ***COMPLETELY CLEAR!!***

I Was Overjoyed - Vitamin C Therapy Worked

I had prepared a copy of a book called "Stop America's #1 Killer!" By Thomas Levy MD for just this result and I went on to explain that my "remarkable" results were repeatable and that blockages were detected they could be dissolved by applying the protocol I had learned. She seemed a

This is a very good book and one I highly recommend reading.

Click Here to Buy on Amazon



Next it was back to my personal doctor with my CT scan results and a copy of the book for him. He was also equally amazed and was interested to read the book. He has since said it has changed his outlook on cardiovascular disease and the way he approaches treatment.

1,000's of years ago we lived in the garden of the world, eating vegetables, fruits and hunted meat. The soil was rich in nutrients and we didn't miss the ability to produce our own vitamin C. We got plenty! But as we have "evolved" and moved out of the garden and into the cities we have begun to suffer from a deficiency in Vitamin C which has led to these problems..

Summary So Far

- **Turns out plaque is not really bad!** It is produced as a protection mechanism by our bodies to protect us from bleeding out from damaged arteries, caused by a vitamin C deficiency and intrinsically low-level scurvy.
- **Collagen is required to keep our arteries flexible and strong.** A vitamin C deficiency equals a collagen deficiency. Vitamin C – along with the amino acids Lysine and Proline – is essential for the formation of healthy collagen.
- **So, by taking Vitamin C with those amino acids regularly, we can keep our arteries flexible and strong and more importantly CLEAR.** And remember blockages are reversible, as soon as we begin to take the Vitamin C formula, repair begins at the wall of the artery, and then as soon as the pl required to plug the cracks is dissolves away harmlessly, reopening the blood flow.

The Basic Pauling Vitamin C Therapy Protocol

- Vitamin C as ascorbic acid—not other forms such as buffered vitamin C or Ester C®: 3 gm daily in divided doses for prevention; 6-10 gm daily for therapeutic treatment, to bowel tolerance. If diarrhea occurs, decrease the dosage slightly.
- Lysine: 2-3 gm daily for prevention; 5-6 gm for therapeutic treatment, and
- Proline: 250-500 mg daily for prevention; 1 gm daily for therapeutic treatment.

The above is the basic Pauling formula and by sticking to the recommendations you will see results. Since I have been taking this formula for many years now, I decided to include it as one of our very first product offerings here at OptimaEarth Labs.

Our Optima Heart is a superior heart formula that ***"replaces handfuls of separate pills"*** and includes many additional nutritional supplements recommended by experts in the field of medicine for optimal cardiovascular health. ***And it SAVES MONEY by combining all these nutrients into one easy to take powder taken with mixed water daily!***

1. Vitamin C – our formula matches the Pauling recommendation of 3 gm for prevention and 6+ gm for therapeutic treatment.

2. Lysine and Proline – our formula provides slightly more of these 2 essential elements for increased efficiency.

New Ingredient #1 Taurine – we included 1000 mg of Taurine as this Amino Acid has been shown to help lower blood pressure, reduce inflammation and stiffness in the arteries.

New Ingredient #2 L-Arginine – we included 200 mg of L-Aginine as this Amino Acid is converted in the body to Nitric Oxide which causes the blood vessels to relax and widen, increasing blood flow.

Vitamin A, Vitamin E, Folic Acid, Vitamin B2 and Vitamin B6 – all essential for our overall heart health and included for additional cardiovascular support.

Lastly Magnesium – we included Magnesium to improve the absorption and bioavailability of all the separate ingredients and the formula as a whole.


Ask us

Resources

Recommended Reading – Books on Amazon

How to Live Longer and Feel Better – Linus Pauling

Practicing Medicine Without A License – Owen Fonorrow?

Stop America's #1 Killer – Dr. Thomas E. Levy

Doctor Yourself: Natural Healing That Works – Andrew W. Saul

on the original Pauling protocol but with added nutrients to increase efficiency and bio-availability. Please click the image on the left or one of the buttons below.

Remember all purchases come with our 100% money-back guarantee.

Click for Details

BUY ON AMAZON

Further resources on Linus Pauling's Vitamin C Therapy:

http://practicingmedicinewithoutalicense.com/protocol/excerpt_chp7.pdf

http://www.paulingtherapy.com

http://lpi.oregonstate.edu/fw12/lipoprotein.html

https://www.medicalnewstoday.com/releases/12154.php

http://www.betterlivinginstitute.com/healthy-tips-podcast/can-vitamin-c-cure-heart-disease-the-linus-pauling-therapy-for-reducing-heart-disease/

https://paulingblog.wordpress.com/2017/02/08/pauling-rath-and-lipoproteina/

OptimaEarth LABS

OptimaEarth Labs is a different kind of supplement company, one that was founded on love and an intrinsic deep caring for our customers and their personal health and wellbeing.

Ask us

CONTACT

10685-B Hazelhurst Dr. # 22599
Houston, TX 77043

info@optimaearth.com

support@optimaearth.com

Facebook Messenger

CATEGORIES

- General Health Products
- Turmeric Supplements

LATEST NEWS

May 31, 2022

Important: Optima Heart Stock Situation

June 27, 2021

Optima Heart Product Update

January 8, 2021

Linus Pauling's Vitamin C Therapy: A Personal Experience